

A.1.B. Orifice Discharge Rate in Imperial Gallons per Minute (EXTENDED)

Pressure Head, Feet	Orifice Diameter Inches								
	1/8	5/32	3/16	7/32	1/4	9/32	5/16	11/32	3/8
2.0	-	-	-	0.66	0.87	1.10	1.36	1.64	1.95
2.5	-	-	-	0.74	0.97	1.23	1.52	1.83	2.18
3.0	-	-	-	0.81	1.06	1.35	1.66	2.01	2.39
3.5	-	-	-	0.88	1.15	1.45	1.79	2.17	2.58
4.0	-	-	-	0.94	1.23	1.55	1.92	2.32	2.76
4.5	-	-	-	1.00	1.30	1.65	2.03	2.46	2.93
5.0	0.34	0.54	0.77	1.05	1.37	1.74	2.14	2.59	3.09
5.5	0.36	0.56	0.81	1.10	1.44	1.82	2.25	2.72	3.24
6.0	0.38	0.59	0.85	1.15	1.50	1.90	2.35	2.84	3.38
6.5	0.39	0.61	0.88	1.20	1.56	1.98	2.45	2.96	3.52
7.0	0.41	0.63	0.91	1.24	1.62	2.06	2.54	3.07	3.65
7.5	0.42	0.66	0.95	1.29	1.68	2.13	2.63	3.18	3.78
8.0	0.43	0.68	0.98	1.33	1.74	2.20	2.71	3.28	3.91
8.5	0.45	0.70	1.01	1.37	1.79	2.26	2.80	3.38	4.03
9.0	0.46	0.72	1.04	1.41	1.84	2.33	2.88	3.48	4.14
9.5	0.47	0.74	1.06	1.45	1.89	2.39	2.96	3.58	4.26
10.0	0.49	0.76	1.09	1.49	1.94	2.46	3.03	3.67	4.37
10.5	0.50	0.78	1.12	1.52	1.99	2.52	3.11	3.76	4.48
11.0	0.51	0.80	1.15	1.56	2.04	2.58	3.18	3.85	4.58
11.5	0.52	0.81	1.17	1.59	2.08	2.63	3.25	3.94	4.68
12.0	0.53	0.83	1.20	1.63	2.13	2.69	3.32	4.02	4.78
12.5	0.54	0.85	1.22	1.66	2.17	2.75	3.39	4.10	4.88
13	0.55	0.86	1.24	1.69	2.21	2.80	3.46	4.18	4.98
13.5	0.56	0.88	1.27	1.73	2.26	2.85	3.52	4.26	5.07
14	0.57	0.90	1.29	1.76	2.30	2.91	3.59	4.34	5.17
14.5	0.58	0.91	1.31	1.79	2.34	2.96	3.65	4.42	5.26
15	0.59	0.93	1.34	1.82	2.38	3.01	3.71	4.49	5.35
16	0.61	0.96	1.38	1.88	2.46	3.11	3.84	4.64	5.52
18	0.65	1.02	1.46	1.99	2.60	3.30	4.07	4.92	5.86
20	0.69	1.07	1.54	2.10	2.75	3.47	4.29	5.19	6.18
22	0.72	1.12	1.62	2.20	2.88	3.64	4.50	5.44	6.48
24	0.75	1.17	1.69	2.30	3.01	3.81	4.70	5.69	6.77
26	0.78	1.22	1.76	2.40	3.13	3.96	4.89	5.92	7.04
28	0.81	1.27	1.83	2.49	3.25	4.11	5.08	6.14	7.31
30	0.84	1.31	1.89	2.57	3.36	4.26	5.25	6.36	7.56
32	0.87	1.36	1.95	2.66	3.47	4.39	5.43	6.56	7.81
34	0.89	1.40	2.01	2.74	3.58	4.53	5.59	6.77	8.05
36	0.92	1.44	2.07	2.82	3.68	4.66	5.75	6.96	8.29
38	0.95	1.48	2.13	2.90	3.78	4.79	5.91	7.15	8.51
40	0.97	1.52	2.18	2.97	3.88	4.91	6.07	7.34	8.73
42	0.99	1.55	2.24	3.05	3.98	5.03	6.22	7.52	8.95
44	1.02	1.59	2.29	3.12	4.07	5.15	6.36	7.70	9.16
46	1.04	1.63	2.34	3.19	4.16	5.27	6.50	7.87	9.37
48	1.06	1.66	2.39	3.26	4.25	5.38	6.64	8.04	9.57
50	1.09	1.70	2.44	3.32	4.34	5.49	6.78	8.21	9.77

Discharge rates from orifices are based on
 $q = 16.37Cd2h^{1/2}$
 where
 q = Imperial gallons per minute flow
 C = coefficient of discharge (0.60)
 d = orifice diameter in inches
 h = pressure head in feet

Use A Minimum 5.0 ft. (1500 mm) Pressure Head for orifices 3/16" and smaller.

Use A Minimum 2.0 ft. (600 mm) Pressure Head for orifices larger than 3/16"

Note: Most pump manufacturers rate pump capacities in US gallons. Selecting the pump will require converting the pump rating in US gallons to Imperial gallons or converting the results from this table to U.S Gallons.

U.S. Gallons =
Imperial Gallons x 1.2

Imperial Gallons =
US Gallons x 0.83